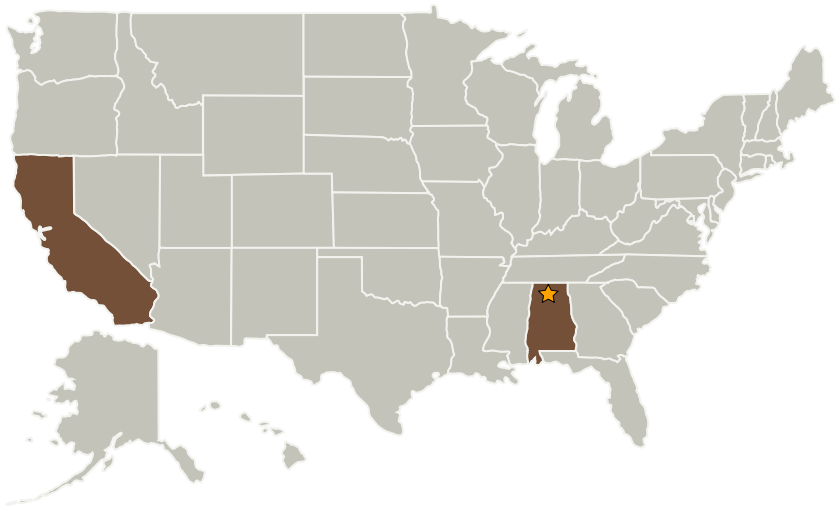
Advanced Heat Transfer Fluids, Phase II

Completed Technology Project (2005 - 2007)

Project Introduction

Future NASA instrumentation will require increasingly sophisticated thermal control technology. We propose a next-generation nanofluid that consists of precisely manufactured nanoparticles that are added to existing coolant liquids. Even at very low loading levels, the nanoparticles dramatically increase the thermal conductivity and the critical heat flux of the fluid. Due to their small size, settling, abrasion, and clogging issues are eliminated, enabling the nanofluid to be immediately incorporated into existing thermal cooling systems. Additionally, the antimicrobial activity of nanofluids will provide a safe, non-toxic solution for the elimination of biofouling and biocorrosion from coolant loops.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Marshall Space Flight Center(MSFC)	Lead Organization	NASA Center	Huntsville, Alabama
nanoComposix, Inc.	Supporting Organization	Industry	San Diego, California

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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Marshall Space Flight Center (MSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Alabama	California

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX14 Thermal Management Systems
  - TX14.2 Thermal Control Components and Systems
    - TX14.2.8 Measurement and Control